15.—In search of the Dibbler, Antechinus apicalis (Marsupialia: Dasyuridae)

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Abstract

The Dibbler, *Antechinus apicalis,* was considered to be extremely rare, if not extinct, prior to 1967 when two specimens were collected at Cheyne Beach, Western Australia. Since then several attempts have been made to collect more specimens, both in the locality in which they were rediscovered and in other localities in the vicinity. Altogether, only 7 Dibblers have been trapped and the only known habitat is one small area of scrub situated close to the fishing settlement and camping area at Cheyne Beach.

Recently, another Dibbler was brought in by a cat on a farm near Jerdacuttup, Western Australia. Despite an intensive trapping effort on all uncleared areas, of land on or immediately adjacent to the farm, and in some nearby areas of bushland, no further specimens were obtained and the habitat of the Dibbler in this region remains unknown.

Introduction

The Dibbler, *Antechinus apicalis,* had not been collected for 83 years when Morcombe (1967) captured two specimens at Cheyne Beach (also known as Hassell Beach), Western Australia. Since then several workers have attempted to collect further specimens of this apparently rare species, with little success. This paper records the results of all attempts to trap the Dibbler, both at Cheyne Beach and at other localities, that are known to the author, from the date of rediscovery.

Trapping at Cheyne Beach

January 1967.—Using 10 traps specially constructed to fit over the flowers of banksias, Morcombe (1967) captured 2 Dibblers in area A (Figure 1) at Cheyne Beach (locality 1, Figure 2). The traps were set for 4 consecutive nights commencing on 25th January. One female *A. apicalis* was found in a trap on the morning of the 27th and one male on the 29th. This represents a trapping success of 5%. In addition to the Dibblers, 2 bush rats, *Rattus fuscipes,* were trapped. Morcombe kept the Dibblers in captivity for several weeks to photograph them and observe their habits.

April 1967.—Ride (1970) captured a female Dibbler in area A (Figure 1) on 8th April. It was caught in a Sherman trap (23 x 8 x 9 cm) baited with 'universal' bait (Ride, pers. comm.). This animal, together with the two collected by Morcombe in January, were sent to the author in May 1967 for study of their reproductive biology (Woolley 1971).

August 1967.—On 1st August, Baynes and Kirsch (Baynes, pers. comm.) trapped a female *A. apicalis* in area A (Figure 1.) Twenty Sherman traps (23 x 8 x 9 cm) were set for 4 nights and the animal was caught on the third night. This represents a trapping success of approximately 1%. The bait used was either 'universal' or beef mince or both. There were no young on the nipples but judging by the appearance of the pouch this female was suckling young; seven of the 8 nipples were elongated, the mammary glands were enlarged and the pouch fur was a reddish-brown colour. The weight of the animal was 78 g and the pes length 24 mm. It was released at the site of capture immediately after inspection.

January/February 1970.—Between 29th January and 4th February Butler (unpublished report, Western Australian Department of Fisheries and Wildlife) trapped in three areas designated Major Area (area A, Figure 1), Coastal Strip (area B, Figure 1) and Hillside Area, the precise location of which cannot be determined from the report. Elliott (32 x 8 x 10 cm), Sherman (23 x 8 x 9 cm), cat (60 x 25 x 30 cm), breakback and pit traps (60 cm deep and 35 cm in diameter) were used. The bait used and the number and types of trap set in each area are not given but in a total of 400 trap-nights 5 *Sminthopsis murina,* 5 *Tarsipes spencerae,* 12 *Rattus fuscipes,* 15 *Mus musculus* and 19 reptiles were captured. No Dibblers were trapped.

March 1970.—Burbidge (pers. comm.) trapped for 4 nights from the 12th in areas C and D (Figure 1). Twenty Elliott traps (32 x 8 x 10 cm), were set in each area. A bait containing peanut paste, sultanas, rolled oats and bacon was used. The only mammals caught were *Mus musculus* and *Rattus fuscipes.*

November 1975.—With the objectives of obtaining a pair of *A. apicalis* for further laboratory studies of the reproductive biology of the species and of determining the distribution of the animals at Cheyne Beach the author trapped in 4 areas over a five-day period commencing on 25th November. Both small (16 x 5 x 6 cm) and large (23 x 8 x 9 cm) Sherman traps baited with bacon and peanut butter were used.

Twenty large Sherman traps were set on 3 consecutive nights and thirty on the fourth night (a total of 90 trap-nights) in the known

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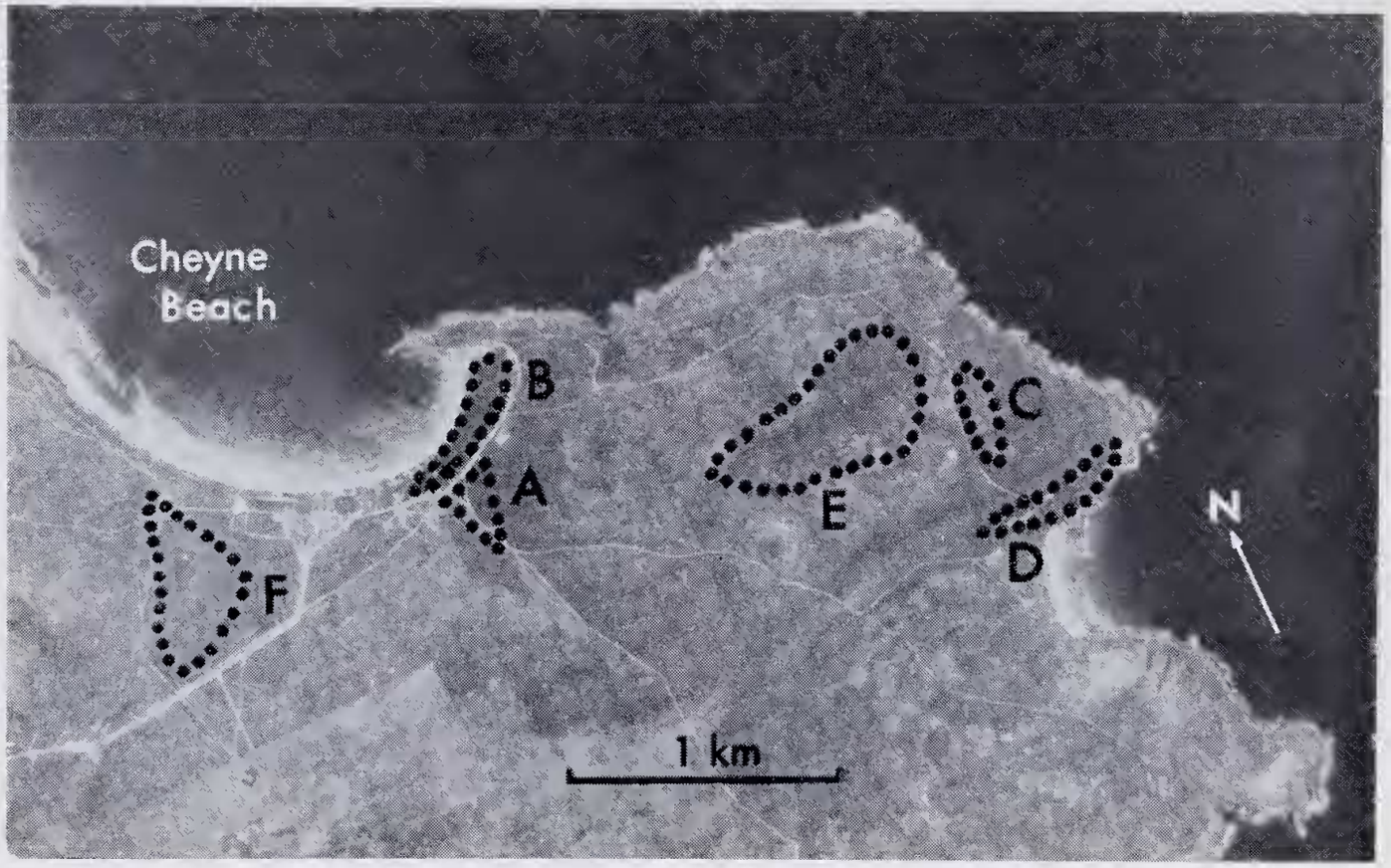

Figure 1.—Aerial photograph of locality 1 (Cheyne Beach) showing the six trapping areas (A, B, C, D, E and F). Commonwealth of Australia Air Photograph, 1971.

Dibbler locality (area A, Figure 1). Three *A. apicalis*, 8 *Rattus fuscipes* (minimum of 3 individuals) and 1 lizard were trapped. Trapping success for *A. apicalis* was approximately 3%. Two *A. apicalis*, one male (number 11) and one female (number 12) were captured on the first night of trapping at trap sites approximately 200 m apart. A second female (number 13) was trapped on the second night at the same trap site as female 12. The animals were not in breeding condition when captured; the male was not showing spermatorrhea and there were no young in the pouches of the two females. The body weight and pes length of each of the animals was as follows:— male 11, 60 g, 25 mm; female 12, 48 g, 24.5 mm; female 13, 73 g, 24.5 mm. Examination of the pouches of the females suggested that female 12 had not previously reared a litter (pouch fur pale, nipples minute) and was therefore probably less than one year old, while female 13 had reared a litter (pouch fur reddish-brown, nipples slightly elongated) and was more than one year old. Male 11 was estimated, by comparison of the body weight with that of laboratory maintained males of known age (Woolley 1971), to be less than one year old.

No Dibblers were captured in the 3 other areas in which trapping was carried out. In area D (Figure 1) no animals were captured in a total of 55 trap-nights over 2 consecutive nights using small Sherman traps. In area E (Figure 1) 1 *Rattus fuscipes*, 1 *Isoodon obesulus* and 3 lizards were captured in a total of 60 trap nights over 2 consecutive nights using large Sherman traps. The bandicoot, *I. obesulus*, which was found dead in the trap on 26th November, was a female with 2 young in the pouch. The three were lodged in the Western Australian Museum (numbers M14364-66). In area F (Figure 1) 50 small Sherman traps were set for 1 night only. One *Mus musculus* and 1 lizard were trapped.

Trapping at other localities

Trapping was carried out by the author at 5 other localities in the vicinity of Cheyne Beach in November and December, 1975 and, following the report of a specimen of *A. apicalis* brought in by a cat on a farm near Jerdacuttup, at another 4 localities in February, 1976.

The owners of the cat, Mr. and Mrs. Goldfinch, who were presented with the dead Dibbler at their house on 24th January, 1976, lodged the specimen in the Western Australian Museum (number M13997). The specimen, which has been examined by the author, is an adult male with a body weight (in spirit) of 95 g and a pes length of 27 mm. Histological sections of one testis and epididymis have been prepared and, although the animal had been frozen before preservation in alcohol, spermatozoa could be recognised and were present in both the testis and epididymis.

Large and small Sherman and Elliott traps (see above for dimensions) were used in the 1975 trapping period; in 1976 only large Sherman

and Elliott traps were used. The traps were baited with bacon and peanut butter.

Location and reserve numbers of the localities in which trapping was carried out are from Western Australian Government Department of Lands maps.

"Bulla Park" (Plantagenet Location 5310)—Locality 2, Figure 2.—Twenty large Sherman traps were set each night on 26th and 27th November on the road reserve adjacent to the property "Bulla Park" on Manypeaks Road. One *Rattus fuscipes* was trapped.

Off Bluff Creek Road (Reserve No. 30033—Mining)—Locality 3, Figure 2.—Trapping was carried out for 3 nights on 29th, 30th November and 1st December at this locality. In a total of 278 trap nights (131 using small and 147 using large Sherman traps) 3 *Rattus fuscipes* were trapped.

"Bluff Creek" (Plantagenet Location 6502)—Locality 4, Figure 2.—Twenty small and 20 large Sherman traps were set on the night of 2nd December. No animals were trapped.

"Umagalee" (Plantagenet Location 6481)—Locality 5, Figure 2.—No animals were trapped in a total of 96 trap-nights, using large Sherman traps, on the nights of 2nd and 3rd December.

Off Cheyne Road (Vacant Crown Land between Plantagenet Location 6501 and coast)—Locality 6, Figure 2.—Using 40 small and 40 large Sherman traps, a total of 160 trap nights in this area on the nights of 2nd and 3rd December yielded 2 *Rattus fuscipes* and 1 male *Isoodon obesulus*.

Tamarine Road—Locality 7, Figure 3.—Forty Sherman traps were set along 1.6 km of the road reserve, and 50 Elliott traps in the adjoining property (Oldfield Location 829). In a total of 260 trap-nights over four consecutive days from 18th February, 25 *Rattus fuscipes* (minimum of 12 individuals), 2 lizards and 1 frog were captured.

Flora and Fauna Reserve No. 31128, Jerdacuttup North Road—Locality 8, Figure 3.—Fifty Elliott traps were set for 3 nights from 20th February. Three *Mus musculus* and 2 lizards were trapped.

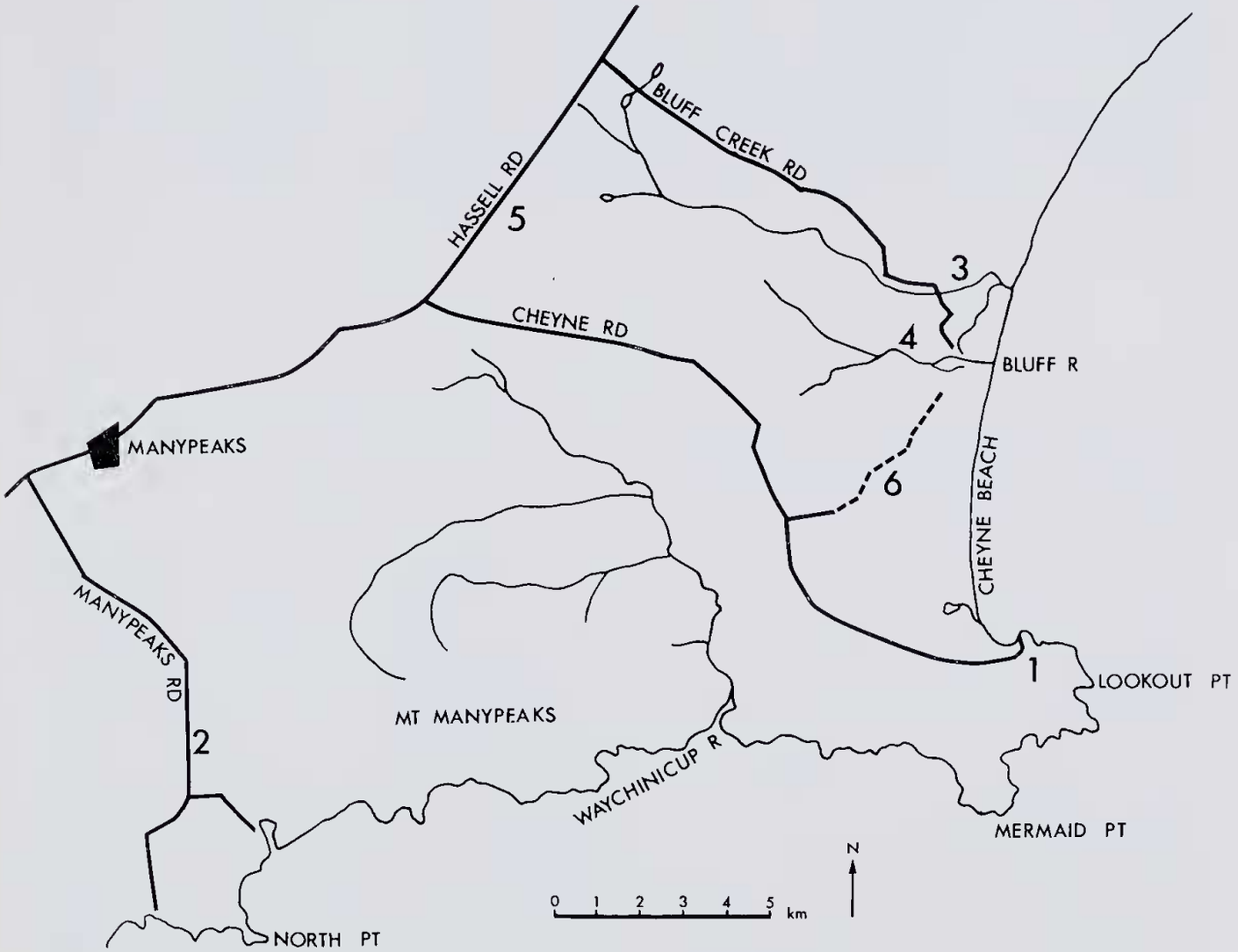

Figure 2.—Map showing the 6 localities in which trapping was carried out in the Cheyne Beach region in the south of Western Australia. Drawn from W.A. Department of Lands 1 inch to 1 mile maps.

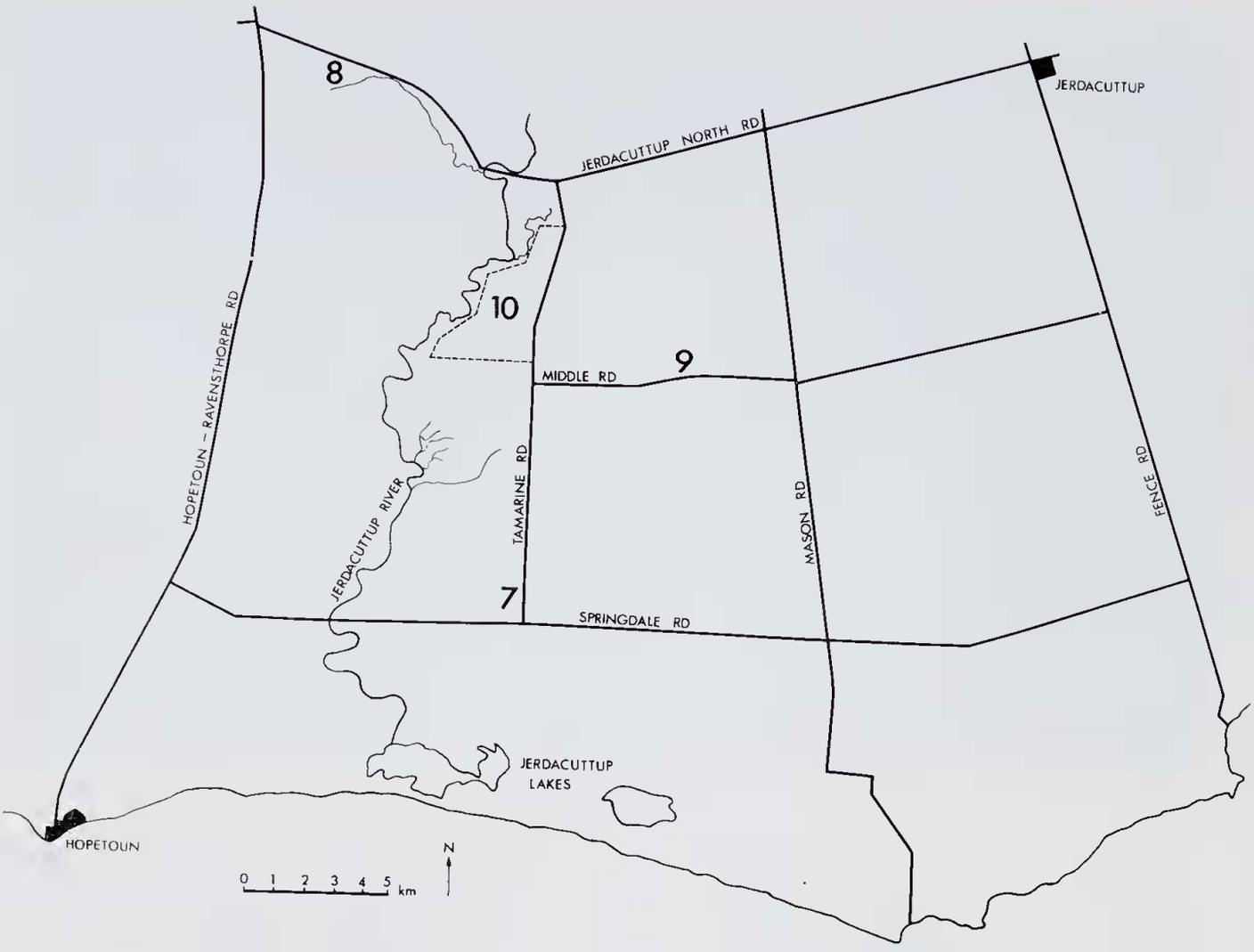

Figure 3.—Maps showing the 4 localities in which trapping was carried out near Jerdacuttup, in the south of Western Australia. Drawn from W.A. Department of Lands 1 inch to 1 mile maps.

Government Requirement Reserve No. 28110, Middle Road—Locality 9, Figure 3.—Forty Sherman traps were set on the nights of 21st and 22nd February along part of the western and southern boundaries of this block. One *Mus musculus* was trapped.

"Slieve Donard" (Oldfield Location 826) and adjacent land—Locality 10, Figure 3.—In this locality trapping was carried out in the five areas shown in Figure 4. Areas A and B are parts of the only two remaining areas of uncleared land on "Slieve Donard". Area C is part of the Jerdacuttup River Reserve; area D, Crown Land at the northern boundary of "Slieve Donard" and area E, the road reserve at the entrance to "Slieve Donard" on Tamarine Road. Sherman traps were used in all areas, and in area C Elliott traps also were used.

No animals were caught in areas A (95 trap-nights over 5 consecutive nights from 18th February, B (120 trap-nights on the 18th, 19th, 23rd and 24th February), D (70 trap-nights on 23rd, 24th February) or E (20 trap-nights on 21st, 22nd February). In area C, 1 *Rattus fuscipes*, 2 *Mus musculus* and 2 lizards were caught in 203 trap-nights over 5 consecutive nights from 18th February.

Choice of the trapping localities

A botanical survey of area A at Cheyne Beach where Morcombe (1967) rediscovered the Dibbler was carried out in 1970 by Butler (unpublished report, Western Australian Department of Fisheries and Wildlife). The species listed for the area are *Banksia attenuata, B. baxteri* and *B. coccinea*, to a height of 2.5 m; *Agonis hypericifolia, A. linearifolia, Adenanthos cuneata, Beaufortia micrantha, Cassytha* sp, *Jacksonia spinosa* and *Phyllota barbata* to a height of 1.2 m and, in the undergrowth, *Anarthria gracilis, Andersonia caerulea, Burchardia umbellata, Calothamnus gracilis, Casuarina humilis, Dasypogon bromeliaefolius, Daviesia juncea, D. polyphylla, Haemodorum spicatum, Hakea ruscifolia, Hibbertia triandra, Hypocalymma strictum, Isopogon longifolius, Johnsonia lupulina, Lepidosperma* sp, *Leptocarpus* sp, *Leucopogon* (4 species), *Lobelia tenuiflora, Lysinema ciliatum, Melaleuca striata,*

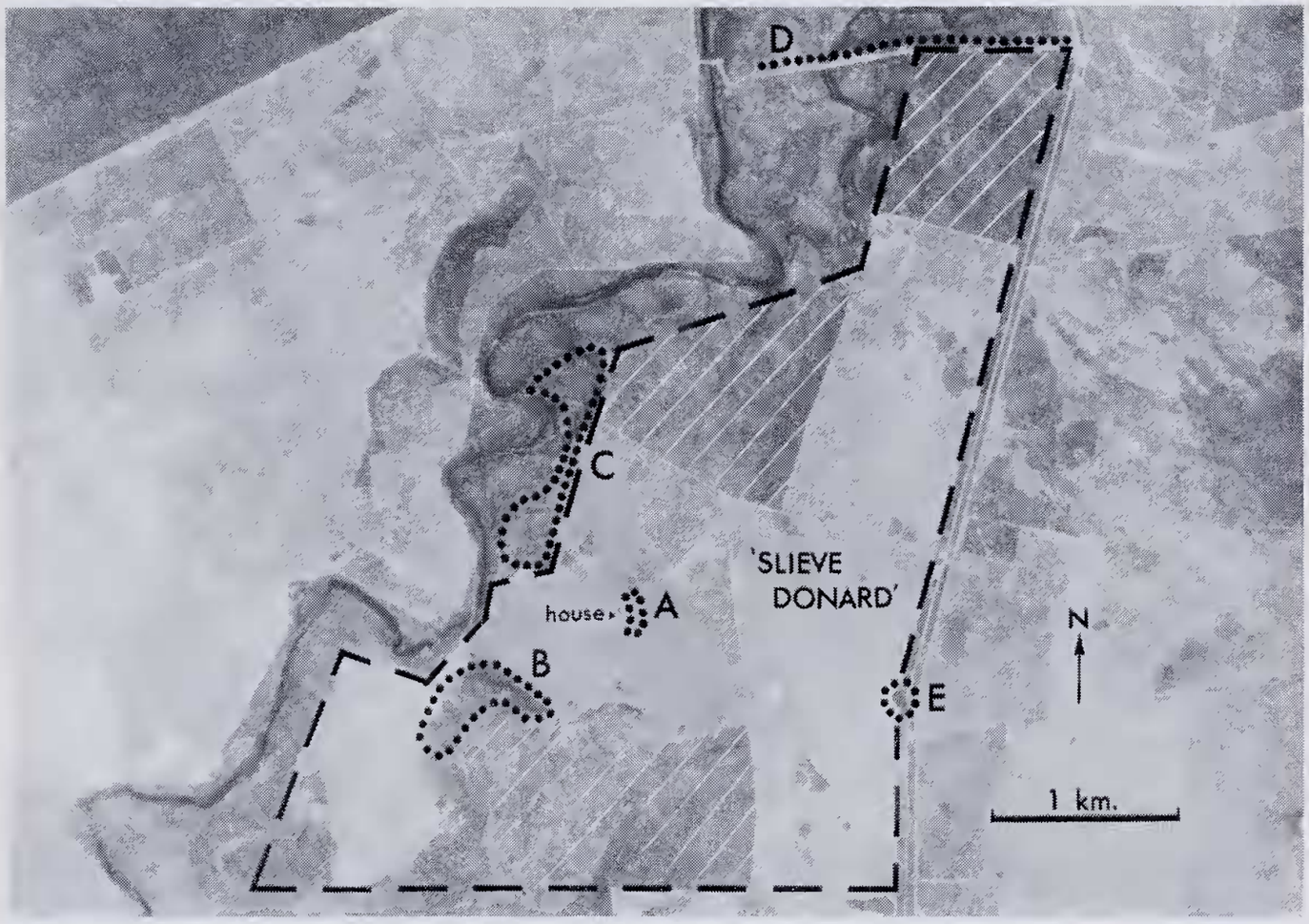

Figure 4.—Aerial photograph of locality 10 ("Slieve Donard" and adjacent land) showing the 5 trapping areas (A, B, C, D and E). Commonwealth of Australia Air Photograph, 1971. More land (indicated by diagonal white lines) has been cleared since this photograph was taken.

Petrophile longifolia, P. rigida, Pimelea longiflora, P. rosea and *Stylidium scandens*. The vegetation is very dense and the ground litter thick, the area not having been burnt for many years. Figure 5 shows the appearance of area A at the site of capture of male 11 in November 1975.

Much of the surrounding countryside was burnt in 1966 (Morcombe 1967) and is now largely covered by lower and less dense vegetation than is present in area A. An exception is the "Coastal Strip" (area B) in which the species listed by Butler are *Acacia decipiens, Agonis flexuosa, Banksia occidentalis, Hardenbergia comptoniana, Lepidosperma gladiatum, Oxylobium lanceolatum, Rhagodia baccata, Sollya fusiformis* and *Spyridium globulosis* to a height of 2.5 m; *Agonis linearifolia, Beaufortia micrantha, Muehlenbeckia adpressa, Melaleuca striata* and *Scirpus nodosus* to a height of 1.2 m. Areas C, D, E and F are patches of slightly taller and denser vegetation amid the generally low vegetation surrounding areas A and B. The composition of the flora in these areas has not been analysed.

Because Dibblers have only been trapped in the one area at Cheyne Beach which has very dense vegetation dominated by species of *Banksia* a search was made in the vicinity of Cheyne Beach during November and December 1975 for other localities with similar vegetation. Three localities (3, 5 and 6) were selected and, superficially, one of these, locality 3, appeared to be similar to the known Dibbler habitat. Here the banksias extended southwards for about 1 km from the point of access on Bluff Creek Road in a narrow zone along the foot of a ridge. At "Umagalee" (locality 5) trapping was carried out in an approximately 200 ha block of uncleared land adjacent to Flora and Fauna Reserve No. 27157 and Waychinicup River Catchment Area Reserve No. 29883. Locality 6 on Crown Land north of Cheyne Road, was a small area on a hillside between cleared farm land and a swamp.

In addition to these 3 localities some trapping was carried out in 2 others in the vicinity of Cheyne Beach. Morcombe suggested locality 2 ("Bulla Park"), a small area of sandplain on which banksias were growing. Access to the area could not be arranged so trapping was only carried out on the fringe area road reserve. Locality 4 was a small area on "Bluff Creek" where the owner, when clearing the land some years previously, had caught an animal which he thought might be a Dibbler. When shown a

Dibbler he was sure that the animal he had found was not the same, so trapping was discontinued after one night.

Choice of the trapping areas near Jerdacuttup was largely determined by the presence of uncleared land. Trapping was carried out in all areas of uncleared land on or immediatey adjacent to the farm "Slieve Donard", on which a Dibbler was brought in by a cat, regardless of the type of vegetation. In addition to these areas three other localities in the vicinity were selected. Two (localities 8 and 9) were selected because they were sizeable areas of Crown Land with vegetation representative of the patches remaining in much of the largely cleared surrounding countryside. The third (locality 7) was selected because the vegetation had the same characteristics as that in the known Dibbler habitat, the tall dominant *Banksia* species here being *B. baxteri* and *B. speciosa*.

Discussion

Only 7 *A apicalis* have been trapped since the species was rediscovered in 1967, and the only known habitat is one small area of scrub situated very close to a fishing settlement and camping area. On four of the five occasions when traps were set in this area (A) Dibblers were caught; specimens being obtained in January, April and August 1967 and again in November 1975. The animals were caught in two types of traps, one of special design by Morcombe, and the larger sized Sherman trap. Although Butler was not using Sherman traps his failure to trap Dibblers in the area in late January and early February 1970 cannot be readily explained. Elliott traps, which are of only slightly greater dimensions than the large Sherman traps, would appear to be equally suitable for trapping the animals. Trapping success, which could only be calculated for 3 of the successful trapping periods, was low, the maximum being achieved by Morcombe (5%). It is possible that the small Sherman traps are not large enough for the animals to enter readily and this may have been a contributing factor to the lack of success in catching Dibblers in areas D and E, locality 1 in November 1975, when only small Sherman traps were used.

At Cheyne Beach *A. apicalis* appears to be restricted to one small area (A). None have been caught in any of the other 5 trapping areas in the locality. The vegetation of area A is different from that in the other areas. Here the *Banksias* are taller and denser than elsewhere, and the ground litter thicker. Morcombe (1967) has commented on the ability of the Dibbler in captivity to climb, and to feed upon the nectar and possibly the insects attracted by the nectar

Figure 5.—Dibbler habitat (area A at Cheyne Beach). The photograph shows the part of the area in which male 11 was captured.

of *Banksia* flowers. He has also noted their habit of rapidly burrowing beneath loose leaf litter when disturbed. These observations, together with those on the vegetation of the various trapping areas in the Cheyne Beach locality, suggest that *A. apicalis* may be dependent on the type of habitat found only in area A. If this is so then there is no obvious explanation for the lack of success in trapping Dibblers in locality 3, near Cheyne Beach, where the vegetation showed a remarkable similarity to that in area A, assuming that the species was widespread prior to the clearing of large areas of land.

The habitat of the Dibbler in the Jerdacuttup region remains unknown. Despite an intensive trapping effort (over 1 000 trap-nights) covering all areas of uncleared land on or adjacent to the farm on which a specimen was brought in by a cat, and in other nearby localities, no Dibblers were captured. One possible explanation for the lack of success may be found in the timing of the trapping in relation to the breeding season. In the related species, *A. stuartii*, changes in trapping success throughout the year have been correlated with breeding activity (Woolley 1966). For this species trapping success was highest (about 15%) in the 2 to 3 months before the breeding season, and it declined to about 5% as the mating period approached. *A. apicalis* is known to mate in the laboratory in March and April and the little available evidence suggests that mating also occurs during this time in the field (Woolley 1971). Trapping in late February might therefore be expected to be less successful than in earlier months in relation to the breeding season. Further attempts to trap the Dibbler in the Jerdacuttup region should therefore be made at another time of the year. Further, although few comparative data are available, *A. apicalis* appears to be more difficult to trap than *A. stuartii* and it may be necessary to devise new trapping methods for greater success.

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